

ARCHIVES OF Biochemistry and Biophysics

Volume 151 **LIBRARY USE ONLY**
1972

UNIVERSITY OF HAWAII LIBRARY

Editorial Committee

S. P. Colowick • R. W. Estabrook • V. Ginsburg • C. H. W. Hirs • F. M. Huennekens
S. Kaufman • P. K. Stumpf • S. N. Timasheff • S. Udenfriend

Chairman: B. L. Horecker, Roche Institute of Molecular Biology, Nutley, New Jersey 07110

Editor Emeritus: F. F. Nord

Editorial Board

S. J. Ajl
V. Allfrey
G. Ashwell
H. A. Barker
E. Cabib
R. D. Cole
E. H. Cordes
R. K. Crane
I. P. Crawford
H. Edelhoch
H. V. Gelboin
J. Gergely
D. E. Green
O. Greengard
E. Gross
L. P. Hager

D. J. Hanahan
Y. Hatefi
O. Hayaishi
L. A. Heppel
L. E. Hokin
B. L. Horecker
F. E. Hunter
A. T. Jagendorf
M. Kasha
W. Kauzmann
G. Kegeles
A. Kleinzeller
D. Kritchevsky
H. R. Mahler
B. G. Malmstrom

C. L. Markert
A. S. Mildvan
G. D. Novelli
L. Packer
G. Palmer
L. H. Piette
H. C. Pitot
G. Popjak
R. R. Porter
J. Preiss
J. C. Rabinowitz
N. S. Radin
L. J. Reed
J. Rupley
D. R. Sanadi

A. San Pietro
W. A. Schroeder
E. N. Shaw
R. G. Shulman
P. Siekevitz
M. V. Simpson
R. G. Spiro
O. Touster
C. R. Treadwell
J. H. Wang
H. Weissbach
C. A. West
W. J. Whelan
I. Zelitch
D. M. Ziegler



ACADEMIC PRESS
New York and London

Copyright © 1972, by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

Made in the United States of America

Contents of Volume 151

Number 1, July 1972

M. P. M. BORGGREVEN, F. J. M. DAEMEN, AND S. L. BONTING. Removal of Amino Group Containing Phospholipids from Rhodopsin XVII. Biochemical Aspects of the Visual Process.....	1
GIULIO LEVI. Transport Systems for GABA and for Other Amino Acids in Incubated Chick Brain Tissue During Development.....	8
ALLEN B. RAWITCH. The Rotational Diffusion of Bovine α -Lactalbumin: A Comparison with Egg White Lysozyme.....	22
SIMONETTA STEFANINI, EMILIA CHIANCONE, CECIL H. McMURRAY, AND ERALDO ANTONINI. Dissociation of Human Hemoglobin by Different Organomercurials...	28
W. BOTTOMLEY, P. R. WHITFIELD, AND D. SPENCER. Stimulation of Chloroplast DNA-Dependent RNA Polymerase by Exogenous DNA.....	35
J. T. NEARY, R. L. MENEELY, M. R. GREVER, AND W. F. DIVEN. The Interactions Between Biogenic Amines and Pyridoxal, Pyridoxal Phosphate, and Pyridoxal Kinase.....	42
ALBERT C. CHOU AND JOHN E. WILSON. Purification and Properties of Rat Brain Hexokinase.....	48
M. TOBES, R. T. KUCZENSKI, AND C. H. SUELTER. Yeast Pyruvate Kinase Renaturation After Dissociation by Guanidine-HCl.....	56
MARC S. SILVER AND MICHAEL S. MATTA. A Comparison of the Utilization of Methyl and <i>p</i> -Nitrophenyl Esters in Determining the Specificity of α -Chymotrypsin.....	62
R. G. SHULMAN, S. OGAWA, AND JOHN J. HOPFIELD. An Allosteric Model of Hemoglobin. II. The Assumption of Independent Binding.....	68
RAMJI L. KHANDELWAL AND IAN R. HAMILTON. Effectors of Purified Adenyl Cyclase From <i>Streptococcus salivarius</i>	75
W. BARRY VAN WINKLE, JULIUS C. ALLEN, AND ARNOLD SCHWARTZ. The Nature of the Transport ATPase-Digitalis Complex: III. Rapid Binding Studies and Effects of Ligands on the Formation and Glycoside-Enzyme Complex.....	85
ARUN K. RAWAT. The Redox-State in Relation to Ethanol Metabolism by Rat and Guinea Pig Liver <i>in Vitro</i>	93
LEONTINO BATTISTIN, FEDERICO PICCOLI, AND ABEL LAJTHA. Heteroexchange of Amino Acids in Incubated Slices of Brain.....	102
DAVID F. WILSON, MARIA ERECIŃSKA, JOHN S. LEIGH, JR., AND MICHELE KOPPELMAN. The Properties of the Mitochondrial Succinate-Cytochrome <i>c</i> Reductase.....	112
D. MICHAEL PAYNE, DAVID W. PORTER, AND R. W. GRACY. Evidence Against the Occurrence of Tissue-Specific Variants and Isoenzymes of Phosphoglucose Isomerase.....	122
MARGARET C. CRAIG, RICHARD E. DUGAN, RICHARD A. MUESING, LINDA L. SLAKEY, AND JOHN W. PORTER. Comparative Effects of Dietary Regimens on the Levels of Enzymes Regulating the Synthesis of Fatty Acids and Cholesterol in Rat Liver.....	128
MARVIN L. TANZER, ROBERT FAIRWEATHER, AND PAUL M. GALLOP. Collagen Cross-links: Isolation of Reduced <i>N</i> ⁶ -Hexosylhydroxylysine from Borohydride-Reduced Calf Skin Insoluble Collagen.....	137
HARVEY S. KANTOR, BESS TEMPLES, AND WILLIAM V. SHAW. Staphylococcal Delta Hemolysin: Purification and Characterization.....	142
Q. A. PLETSCH AND J. W. COFFEY. Properties of the Proteins That Bind Vitamin B ₁₂ in Subcellular Fractions of Rat Liver.....	157

J. C. VIDAL, P. CATTANEO, AND A. O. M. STOPPANI. Some Characteristic Properties of Phospholipases A ₂ from <i>Bothrops newwedii</i> Venom	168
DAVID F. WILSON, MARIA ERECIŃSKA, AND E. S. BROCKLEHURST. The Chemical Properties of Cytochrome <i>c</i> Oxidase in Intact Mitochondria	180
MARIA ERECIŃSKA, DAVID F. WILSON, NOBUHIRO SATO, AND PETER NICHOLLS. The Energy Dependence of the Chemical Properties of Cytochrome <i>c</i> Oxidase	188
WILLIAM J. BROCKWAY AND FRANCIS J. CASTELLINO. Measurement of the Binding of Antifibrinolytic Amino Acids to Various Plasminogens	194
GEORGIS A. LEMPIDAKIS AND GEBHARD KOCH. Interaction of viral RNA with <i>Escherichia coli</i> . I. Polycation Augmented Adsorption of Poliovirus-Induced Double-Stranded RNA	200
P. NICHOLLS AND C. E. WENNER. Release of Respiratory Control by Uncouplers: The Question of Stoichiometry	206
MANJUSREE BAL, GANES SEN, USHA MAHAJANI, AND ASOKE G. DATTA. Studies on Some Aspects of Peroxidase from Submaxillary Gland	216
J. SEBASTIAN AND C. ASENSIO. Purification and Properties of the Mannokinase from <i>Escherichia coli</i>	227
GEORGE H. DEVRIES AND S. B. BINKLEY. <i>N</i> -Acetylneuraminic Acid Aldolase of <i>Clostridium perfringens</i> : Purification, Properties and Mechanism of Action	234
GEORGE H. DEVRIES AND S. B. BINKLEY. 3-Hydroxy- <i>N</i> -Acetylneuraminic Acid: Synthesis and Inhibitory Properties	243
H. MÖHLER, K. DECKER, AND W. A. WOOD. Structure of 2-Keto-3-Deoxy-6-Phosphogluconate Aldolase. IV. Structural Features Revealed by Treatment with Urea and Ellman's Reagent	251
MASANOBU YAMAMOTO AND LEONARD H. BICKNELL. Salmon Testes Deoxyribonuclease: Large-Scale Purification and Properties	261
ROBERT E. ANDERSON AND MAUREEN B. MAUDE. Lipids of Ocular Tissues. VIII. The Effects of Essential Fatty Acid Deficiency on the Phospholipids of the Photoreceptor Membranes of Rat Retina	270
F. H. GAERTNER. Purification of Two Multienzyme Complexes in the Aromatic/Tryptophan Pathway of <i>Neurospora crassa</i>	277
WALTER DESMOND, JR. AND ISAAC HARARY. <i>In Vitro</i> Studies of Beating Heart Cells in Culture. XV. Myosin Turnover and the Effect of Serum	285
RAFFAELE COLONNA, PAOLO DELL'ANTONE, AND GIOVANNI FELICE AZZONE. Binding Changes and Apparent <i>pK_a</i> Shifts of Bromthymol Blue as Tools for Mitochondrial Reactions	295
MARIA ERECIŃSKA AND BRITTON CHANCE. Studies on the Electron Transport Chain at Subzero Temperatures: Electron Transport at Site III	304
JOYCE JOHNSON DIWAN. Effects of Tannic Acid on Ion Transport in Rat-Liver Mitochondria	316
JENNY PICKWORTH GLUSKER. <i>Cis</i> - and <i>trans</i> -Aconitates: Their Probable Conformations in the Active Sites of Enzymes Utilizing Aconitate as a Substrate	322
FERDINAND HUCHO, DOUGLAS D. RANDALL, THOMAS E. ROCHE, MICHAEL W. BURGETT, JOHN W. PELLEY, AND LESTER J. REED. α -Keto Acid Dehydrogenase Complexes. XVII. Kinetic and Regulatory Properties of Pyruvate Dehydrogenase Kinase and Pyruvate Dehydrogenase Phosphatase from Bovine Kidney and Heart	328
J. M. BILSTAD, H. EDELHOCH, R. LIPPOLDT, J. E. RALL, AND G. SALVATORE. Isolation and Characterization of Discrete Fragments of 27 S Thyroid Iodoprotein	341
SHORT COMMUNICATIONS	
CORWIN HANSCH AND NEAL CORNELL. Correlation of Chaotropic Effects of Halacetates with the Hydrophobic Parameter π	351
J. JÁUREGUI-ADELL, G. CLADEL, C. FERRAZ-PINA, AND J. RECH. Isolation and Partial Characterization of Mare Milk Lysozyme	353
AUTHOR INDEX	356

Number 2, August 1972

W. H. HARRISON AND R. M. GRAY. Stimulation of Yeast Hexokinase by Catecholamines and Related Compounds	357
--	-----

R. TOWERS, H. DIXON, G. M. KELLERMAN, AND A. W. LINNANE. Biogenesis of Mitochondria. 22. The Sensitivity of Rat Liver Mitochondria to Antibiotics; a Phylogenetic Difference Between a Mammalian System and Yeast.	361
WILLIAM N. FISHBEIN AND K. NAGARAJAN. Urease Catalysis and Structure. VIII. Ionic Strength Dependence of Urease Polymerization and Polymer pI.	370
SARIE ENTSCH AND ROBERT M. SMILLIE. Oxidation-Reduction Properties of Phytoflavin, a Flavoprotein from Blue-Green Algae.	378
BERNARD BULOS, SHRI SHUKLA, AND BERTRAM SACKTOR. Effect of Thyroid Hormone on Respiratory Control of Liver Mitochondria from Adult and Senescent Rats.	387
ANGELA JANSSON, STEN ORRENIUS, AND LARS ERNSTER. A Study of the Interaction of a Series of Substituted Barbituric Acids with the Hepatic Microsomal Monooxygenase.	391
ROBERT T. TAYLOR AND M. LESLIE HANNA. <i>Escherichia coli</i> B N ⁵ -Methyltetrahydrofolate-Homocysteine Cobalamin Methyltransferase: Binding of the Folate Substrate to the Enzyme.	401
A. KIESOW, J. B. SHELTON, AND J. W. BLESS. CO ₂ Partial Pressure and the Enthalpy and Thermodynamic Efficiency of the Oxidation of Nitrite by <i>Nitrobacter</i>	414
MAHENDRA NATH AND G. G. SANWAL. Threonine Dehydratase from Goat Liver.	420
JULIAN A. PETERSON AND BRENDA WALKER GRIFFIN. Carbon Monoxide Binding by <i>Pseudomonas putida</i> Cytochrome P-450.	427
HUGO THEORELL, BRITTON CHANCE, TAKASHI YONETANI, AND NOZOMU OSHINO. The Combustion of Alcohol and its Inhibition by 4-Methyl-Pyrazole in Perfused Rat Livers.	434
MERRY L. PHILLIPS AND P. AZARI. Iodination of Ovotransferrin and Its Iron Complex. Extent of Involvement of Tyrosine Phenolic Groups in the Iron Binding.	445
LOWELL E. HOKIN AND TERRY D. HEXUM. Studies on the Characterization of the Sodium-Potassium Transport Adenosine Triphosphatase. IX. On the Role of Phospholipids in the Enzyme.	453
JOHN A. GROVE, FRANK YOUNG, HENRY GLEN ROGHAI, AND PAUL SCHIPKE. Lysine Metabolism in Rabbits.	464
W. E. FRY AND R. L. MILLAR. Cyanide Degradation by an Enzyme from <i>Stemphylium loti</i>	468
TATSURO IRIMURA AND TOSHIKI OSAWA. Studies on a Hemagglutinin from <i>Bauhinia purpurea alba</i> Seeds.	475
WALLACE W. ANGUS AND ROBERT L. LESTER. Turnover of Inositol and Phosphorus Containing Lipids in <i>Saccharomyces cerevisiae</i> ; Extracellular Accumulation of Glycerophosphorylinositol Derived from Phosphatidylinositol.	483
PETER G. SHAKESPEARE AND HENRY R. MAHLER. Properties and Use of an Antiserum to Cytochrome Oxidase from Baker's Yeast.	496
S.-C. CHENG AND R. H. C. CHENG. A Mitochondria Phosphoenolpyruvate Carboxykinase from Rat Brain.	501
T. TEPPER AND P. K. WIERENGA. Further Studies on the Oscillatory Rate of Hemoglobin Synthesis in Rabbit Reticulocytes.	512
K. H. SEIFART, B. J. BENECKE, AND P. P. JUHASZ. Multiple RNA Polymerase Species from Rat Liver Tissue: Possible Existence of a Cytoplasmic Enzyme.	519
F. R. SALEMME. A Free Interface Diffusion Technique for the Crystallization of Proteins for X-Ray Crystallography.	533
M. J. HARRIS, J. B. WILSON, AND T. H. J. HUISMAN. Structural Studies of Hemoglobin α Chains from Virginia White-Tailed Deer.	540
DONALD L. KEISTER AND NORM JEAN MINTON. Energy-Linked Reactions in Photosynthetic Bacteria. VII. Inhibition of NAD ⁺ Reduction by Phenethylbiguanide.	549
ANTHONY G. PUCELL AND ANTHONY MARTONOSI. Sarcoplasmic Reticulum. XV. Dissociation of the Membrane ATPase Enzyme of Sarcoplasmic Reticulum into Subunits by Ultrasonic Treatment.	558
TAKEHIKO YAJIMA, MARY ANN GRIGG, AND EDWARD KATZ. Biosynthesis of Antibiotic Peptides with Isoleucine Stereoisomers.	565
W. J. BLACK, A. VAN TOL, J. FERNANDO, AND B. L. HORECKER. Isolation of a Highly	

Active Fructose Diphosphatase from Rabbit Muscle: Its Subunit Structure and Activation by Monovalent Cations.....	576
A. VAN TOL, W. J. BLACK, AND B. L. HORECKER. Activation of Rabbit Muscle Fructose Diphosphatase by EDTA and the Effect of Divalent Cations.....	591
IUPAC-IUB COMMISSION ON BIOCHEMICAL NOMENCLATURE. Abbreviated Nomenclature of Synthetic Polypeptides (Polymerized Amino Acids): Revised Recommendations (1971).....	597
AUTHOR INDEX.....	603
SUBJECT INDEX.....	604